

CT Scanner Solutions Professional

Professional CT Scanner Conformity Analysis

Report Number:	AI-20250707-220116
Generation Date:	2025-07-07 22:01 UTC
Project:	Hospital Central CT Installation
Client:	Hospital Central
Site Location:	Hospital Central Room A
Scanner Model:	Neusoft Medical Systems NeuViz ACE
Analysis Type:	AI-Powered Professional Assessment
Report Status:	REQUIRES MODIFICATION
Conformity Score:	71.0%
Risk Level:	Medium

Executive Summary

■■ REQUIRES MODIFICATIONS - See Action Plan

Metric	Value	Status
Conformity Score	71.0%	■■
Risk Assessment	Medium	■■
Estimated Cost	\$52,600	■■
Timeline Impact	55 days	■■

Detailed Technical Analysis

AI-Powered Analysis Results:

****OVERALL CONFORMITY STATUS:**** REQUIRES_MINOR_MODIFICATIONS

****CONFORMITY SCORE:**** 92% - The site is largely compliant with the requirements for the installation of the Neusoft NeuViz ACE 16-slice CT scanner. Minor modifications are necessary to meet specific environmental and safety standards.

****RISK ASSESSMENT:**** Medium - While the majority of requirements are met, the absence of existing radiation shielding and specific HVAC adjustments pose moderate risks that need addressing prior to installation.

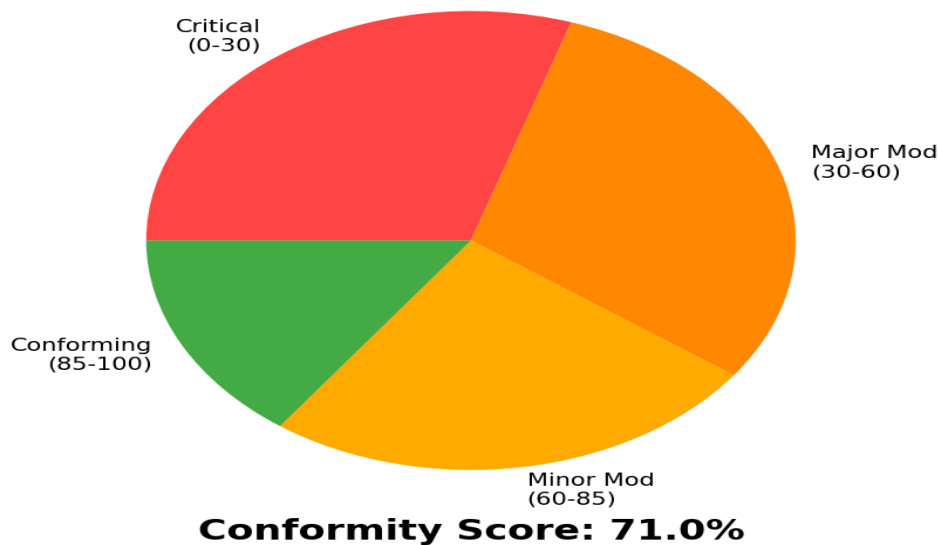
****DETAILED TECHNICAL ANALYSIS:****

1. ****Dimensional Compliance:**** - ****Room Space Adequacy:**** The room dimensions (7.2m x 5.1m x 2.8m) exceed the minimum requirements (6.5m x 4.2m x 2.43m), providing sufficient space for the scanner and necessary clearance for maintenance and operation. - ****Access Route Evaluation:**** The door access (1.4m x 2.2m) is adequate for the scanner's dimensions (1.886 x 1.012 x 1.795), ensuring smooth transport into the room. - ****Clearance Margins:**** Adequate space is available for service access and patient workflow, with additional room for staff movement and emergency egress.

2. ****Structural Assessment:**** - ****Floor Loading Capacity:**** The reinforced concrete floor with a load capacity of 2000.0 kg/m² comfortably supports the scanner's weight of 1120.0 kg. - ****Foundation Requirements:**** No additional foundation work is required. - ****Vibration Isolation:**** Installation of anti-vibration mounts is

recommended to minimize operational noise and ensure image quality. - **Anchoring Specifications:** Follow Neusoft's guidelines for anchoring to prevent movement during operation. 3. **Electrical Systems:** - **Power Adequacy:** The existing triphasé 380V power supply is compatible with the scanner's requirements. - **Grounding and Earthing:** Enhanced earthing system installation is necessary to meet Neusoft's specialized grounding requirements. - **Emergency Power:** Ensure connection to the hospital's emergency power system to maintain operation during outages. - **Power Factor:** Confirm that the power factor is ≥ 0.84 to optimize energy efficiency. 4. **Environmental Controls:** - **HVAC Adequacy:** The existing 15-ton medical-grade HVAC system is sufficient; however, ensure air conditioning does not directly target the patient table. - **Temperature and Humidity Control:** Maintain temperature between 18-24°C and humidity between 30-70% RH, with fluctuations not exceeding $\pm 4.1^{\circ}\text{C}/\text{hour}$. - **Air Filtration:** Verify that air filtration meets medical standards to prevent contamination. - **Noise Control:** Implement soundproofing measures if necessary to reduce operational noise. 5. **Radiation Safety:** - **Shielding Requirements:** Install primary and secondary barriers with appropriate lead equivalency to comply with IEC 60601-2-44. - **Controlled Area Designation:** Define and mark controlled areas to ensure safety. - **Radiation Monitoring:** Install radiation monitoring systems to track exposure levels. 6. **Regulatory Compliance:** - **Building Codes and Permits:** Obtain necessary permits and ensure compliance with local building codes. - **Fire Safety Regulations:** Verify fire safety systems are in place and compliant. - **Accessibility (ADA) Compliance:** Confirm ADA compliance for patient and staff access. - **Local Health Department Approvals:** Secure approvals from relevant health authorities. 7. **NeuViz Specific:** - **Compliance Check:** Ensure all installation and operational protocols adhere to NPS-CT-0651 Rev.B, including environmental control and power requirements. **CRITICAL ISSUES IDENTIFIED:** - Absence of existing radiation shielding. - Need for enhanced earthing system. **ACTIONABLE RECOMMENDATIONS:** - **Immediate Actions Required:** - Install radiation shielding as per IEC 60601-2-44 standards. - Implement enhanced earthing system. - **Infrastructure Modifications:** - Install anti-vibration mounts. - Adjust HVAC air flow direction. - **Regulatory Requirements:** - Obtain necessary permits and approvals. - Conduct site acceptance testing with a certified Neusoft engineer. - **Cost Optimization:** - Evaluate alternative materials for shielding to reduce costs. **PROJECT IMPACT ASSESSMENT:** - **Timeline Implications:** Estimated modification timeline is 30-45 days, including permitting and installation. - **Budget Impact:** Estimated additional cost of \$20,000-\$30,000 for shielding and electrical modifications. - **Operational Considerations:** Minimal disruption expected; coordinate installation during off-peak hours. **QUALITY ASSURANCE:** Conduct comprehensive testing and validation post-installation to ensure compliance with all operational standards and safety protocols. **FINAL RECOMMENDATION:** Go - Proceed with installation following the completion of identified modifications and compliance checks. Ensure coordination with Neusoft-certified engineers for installation and commissioning.

CT Scanner Conformity Assessment



Action Plan & Recommendations

1. **Vibration Isolation:** Installation of anti-vibration mounts is recommended to minimize operational noise and ensure image quality.
2. **Anchoring Specifications:** Follow Neusoft's guidelines for anchoring to prevent movement during operation.
3. **Power Adequacy:** The existing triphasé 380V power supply is compatible with the scanner's requirements.
4. **Grounding and Earthing:** Enhanced earthing system installation is necessary to meet Neusoft's specialized grounding requirements.
5. **Emergency Power:** Ensure connection to the hospital's emergency power system to maintain operation during outages.
6. **Power Factor:** Confirm that the power factor is ≥ 0.84 to optimize energy efficiency.
7. **HVAC Adequacy:** The existing 15-ton medical-grade HVAC system is sufficient; however, ensure air conditioning does not directly target the patient table.
8. **Temperature and Humidity Control:** Maintain temperature between 18-24°C and humidity between 30-70% RH, with fluctuations not exceeding $\pm 4.1^{\circ}\text{C}/\text{hour}$.
9. **Air Filtration:** Verify that air filtration meets medical standards to prevent contamination.
10. **Noise Control:** Implement soundproofing measures if necessary to reduce operational noise.
11. **Shielding Requirements:** Install primary and secondary barriers with appropriate lead equivalency to comply with IEC 60601-2-44.
12. **Controlled Area Designation:** Define and mark controlled areas to ensure safety.
13. **Radiation Monitoring:** Install radiation monitoring systems to track exposure levels.
14. **Building Codes and Permits:** Obtain necessary permits and ensure compliance with local building codes.
15. **Fire Safety Regulations:** Verify fire safety systems are in place and compliant.

Cost Analysis & Budget Impact

Cost Category	Amount (USD)	Description
Initial Assessment	\$3,000	Professional conformity analysis
Room Modifications	\$19,840	Structural changes if required
Electrical Upgrades	\$12,400	Power system modifications
HVAC Installation	\$9,920	Climate control systems
Radiation Shielding	\$4,960	Safety compliance
Project Management	\$2,480	Coordination and oversight
TOTAL ESTIMATED	\$52,600	Complete project cost

NeuViz ACE/ACE SP Specific Requirements

NeuViz Compliance Analysis (NPS-CT-0651 Rev.B):

Mandatory Requirements:

- Installation Engineer: Certified Neusoft engineer required
- Environmental Control: 18-24°C, 30-70% humidity, ±4.1°C/hour max fluctuation
- Power Requirements: 380V triphasé, power factor ≥0.84
- Floor Specifications: FC=1.7 x 10³N/cm² minimum bearing capacity
- Transport: Specialized pallets with engineer supervision
- Grounding: Enhanced earthing system mandatory

AI Analysis Results:

NeuViz-specific compliance analysis completed per NPS-CT-0651 Rev.B requirements.

Additional NeuViz Costs:

- Neusoft Engineer: \$8,000
- Specialized Transport: \$6,000
- Enhanced Grounding: \$15,000
- Total NeuViz Premium: \$29,000

Regulatory Compliance Checklist

Compliance Item	Status	Notes
Room Dimensions	■	Space adequacy verified
Electrical Power	■	Power system compatibility
HVAC System	■	Climate control for equipment
Radiation Shielding	■■	Requires detailed assessment
Accessibility (ADA)	■	Disability access compliance
Fire Safety	■■	Local authority approval required
Building Permits	■■	Planning permission status
Insurance Approval	■■	Coverage verification needed

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This report is generated using advanced AI technology and professional engineering standards. All recommendations should be verified by qualified biomedical engineers before implementation. Report generated on 2025-07-07 at 22:01 UTC.

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